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ABSTRACT

Communications media have long been acknowledged as the site of intense political struggle over issues of access to, control over, and representations in these media. That communications research is likewise the site of struggle between the various paradigms of the discipline is, however, troubling to the neophyte communication scholar. For well over 10 years, communication scholarship has been engaged in internal struggles over the preeminence of one paradigm over the others. Accompanying this paradigmatic division is the dynamic convergence of traditional and new communications media. Information Technology (IT), an umbrella term for the new communications media, offers communication research a unique opportunity to reinvent itself in the service of understanding the complex relations and social/political dynamics of the information revolution. IT represents a potentially radical shift in the ways in which knowledge is created, reproduced, and disseminated and, as such, it subjects to revolutionary changes the underlying epistemologies of the various communications paradigms. The geodesic network provides the means and the model by which the social scientific, critical/cultural, and law and policy paradigms of communication research can network. The successful integration of the three paradigms of communication research is essential for investigating the increasingly complex questions of media literacy, uses and effects, media access and ownership, public versus private interests, participatory politics, civil society, and the character of discourse within society. (Contains 35 references and 4 notes.) (CR)

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Networking Paradigms: Information Technology and Communication Studies

Student Paper

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Running Head:
Networking

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Networking Paradigms:
Information Technology and Communication Studies

POTATO-CHIP WOMAN (*Walking and talking*) Uh, Mr. Bates, uh, excuse me, what have you got against intellectuals?

SANDY (*Offscreen, reacting*) What? What? Against intellectuals? Nothing. Why?

POTATO-CHIP WOMAN Mr. Bates, I've seen all your films. You really feel threatened by them.

SANDY (*Offscreen*) Threatened? You're kidding. I've always said they're like the Mafia. They only kill their own.

-- from Woody Allen's *Stardust Memories*

"A wide range of substantive issues can be pursued in the highest tradition of careful, demanding, and rigorous scholarship, employing a wide range of theoretical approaches and empirical methods" (Melody and Mansell, 1983, p. 111).

Communications media have long been acknowledged as the site of intense political struggle over issues of access to, control over, and representations in these media. New communication technologies are understood to be a contested terrain of shifting power relations, epistemologies, and social structures (Carey, 1989; Marvin, 1988; Pool, 1983; Smulyan, 1994). That communication *research* is likewise the site of struggle between the various paradigms of the discipline is, however, troubling to the neophyte communication scholar.

For well over ten years, communication scholarship has been engaged in internal struggles over the "preeminence" of one paradigm over the others.[1] Each paradigm offers potential strengths and contains inherent weakness in terms of methodologies, biases, and underlying ideologies. And while a great deal of disciplinary "soul searching" over the past ten years has enhanced the on-going discourse over methodological and pedagogical issues, precious little has been offered in the way of practical approaches to "link up" the paradigms in any meaningful and productive fashion. This is not to suggest communications studies can or should be immune to the contestatory, and oftentimes divisive nature of intellectual pursuit, or any human endeavor, for that matter. What is problematic, particularly for the young scholar, is the seemingly impervious epistemological and ideological barriers to *effective* communication research.

In using the term "effective" here I do not deny the discipline's utility in exploring the complex relationship between media systems and social, political, and cultural, organization and maintenance. To the contrary, effective communication scholarship unpacks these dynamic relationships with a variety of methodological tools based upon numerous epistemological foundations. And while paradigmatic and ideological debates are essential to maintaining rigorous intellectual inquiry, the tenor of this discourse in the communications literature is not merely contestatory, but oftentimes inflammatory, and ultimately, divisive. There's an awful lot of it too.

A cynical perspective might find the sheer volume of this paradigmatic debate as nothing but mere tenure fodder-- a route to publication offering little else but some self-serving, intradisciplinary navel gazing. (*In a self-reflective moment, this analysis might be seen as just such an effort.*) More alarming than this, however, is the realization that such intellectual self-examination is no more than an obfuscatory discourse which marginalizes the urgent issues confronting communications studies by foregrounding methodological and ideological divisions:

> The remarkable growth in size of that part of the establishment contributed by communication research is not attributable to great achievements, but to ever more fragmentation. We 'gain' by knowing more and more about less and less. Clans, splinter groups, proselytizing networks, 'our truth is better than your truth' squads emerge, each offering a set of proprietary terms, catchwords, slogans, and dogma by which members distinguish themselves and attempt to gain recruits, each claiming to be on the only right path. One does not see coherence; one sees competition (Thayer, 1983, p. 84).

To be sure, the discussion over the futility of such acrimonious division within the communications discipline has been acknowledged by many of its key players. Similarly, the historical, ideological, and epistemological divisions can not be bridged "overnight." Still, the efforts to alleviate the "ferment" and the moves toward "cohesion" exhibit certain unsavory qualities, not least of which is the realization that "talk is cheap" and that precious little has been done in terms of the *practice* of communications research to move the field toward greater intradisciplinary harmony.

Accompanying this paradigmatic division is the dynamic convergence of traditional and new communications media, a concentration of media ownership and control (Daly and Fitzgerald, 1993), dramatic structural reorientations -- wrought by capital investment in, and utilization of, new communications technology -- to the prevailing global economic order, (Harvey, 1989) and ill-informed, uncritical, and ad hoc partisan telecommunications policy initiatives. (McAvoy, 1994). The irony in all this is clear. At a time of intense concentration of telecommunications resources and organizing principles, communication scholarship remains, some might suggest is becoming increasingly, fractured. Despite overtures from across the various paradigms, a much needed pragmatism is sorely lacking within communication studies if the field is to survive the potentially radical changes engendered by new communications technologies .

The purpose of this discussion then is two-fold. First, it is suggested that Information Technology (I.T.), an umbrella term for these new communications media, offers communication research a unique opportunity to reinvent itself in the service of understanding the complex relations and social/political dynamics of the information revolution. [2] Second, and perhaps more important for overcoming the epistemological divide between communication paradigms, it is argued that *Information Technologies represent a potentially radical shift in the ways in which knowledge is created, reproduced, and disseminated. As such the underlying epistemologies of the various communications paradigms are subject to revolutionary changes.* Put another way, all epistemological bets are off. Knowledge claims are "up for grabs." As such, information technology is at once the object of study for communication researchers, as well as the vehicle by which communication scholarship may overcome its methodological and disciplinary divisiveness.

What is I.T.?

I.T. is not merely "about" computers and databases, rather I.T. embodies the integration of a variety of telecommunications software (computer programs, databases, graphics, sound, full-motion video, and text) and hardware (satellites, fiber optic cables, computer networks, and world-wide computer interconnection) and services (data management and information processing). As such, I.T. represents an area of study which calls for dynamic, creative, and multifaceted,

interdisciplinary research methodologies. I.T.'s rapid development and adoption engender increasingly problematic theoretical and public policy questions--questions which not only encourage, but rather *demand* the integration of communication scholarship in order to better interrogate the consequences of the Information Revolution upon individual and societal behaviors, power structures and relations, issues of citizenship and participatory politics, and finally, knowledge production and dissemination.

In order to proceed with this argument, I offer a brief overview of the divisions within communication research. This effort provides the basis for evaluating each paradigm's strengths and weaknesses for interrogating I.T. Second, I attempt to "map out" the policy implications of I.T. in order to make a case for the urgency of cooperative efforts between communications paradigms. As the nature and extent of human-computer interaction grows more diverse, and the convergence of new and traditional media blur the distinctions between these media, the necessity for such comprehensive efforts grows. Only through epistemological and methodological integration can communication researchers realize a rigorous, critical, as well as practical, evaluation of I.T.

At this point I must emphasize that this call for integration is not an effort to create a unified, or *monolithic* communication paradigm. Such an attempt would be an exercise in futility, and ultimately at odds with the strength of the approach I am offering. In other words, this essay suggests that each of the communications paradigms has "what to offer" in terms of understanding the dynamics of communications media upon individual behaviors, social, political, and economic organization, ways of knowing, and, ultimately, upon the nature of collective consciousness. With this in mind, I am calling not for a single communications paradigm, rather, I seek a flexible, integrated approach among and between these various approaches: a *networking* of paradigms.

Ferment in the Field:
Converging Technologies, Diverging Paradigms

The hot topic in the academic as well as the popular press is the much touted, but poorly understood, and severely under-theorized concept of the information highway. To be sure the stakes are high for all the players (local and national government; hardware and software suppliers; citizens and consumers) involved in the design, implementation, and use of the NII (National Information Infrastructure). In his explication of the dynamics of the Information Revolution, Douglas Gomery observes that it is *convergence* of media form and content which is the driving force for many of the technological innovations we recognize today and can expect tomorrow.

> Television movies, radio, newspapers, books, and data have all in the past been composed in different media -- on paper or film or magnetic tape. Today, however, all can be reduced to a single form of 'information,' the common language of the computer's binary code, and endless string of ones and zeroes. No longer is it necessary (technically at least) to print a newspaper on paper or to distribute a movie on film. *Everything can be reduced to the same simple form and transmitted directly to -- and in some cases from -- consumers by wire, or, for that matter, on floppy disc or compact disk. And if film, print, and music are similar forms of 'information,' then the traditional divisions among industries that produce them begin to make less sense.* [Emphasis Added.] (Gomery, 1994, p. 11)

The convergence of media products and services, with its attendant shifts in "traditional" notions of production and consumption, public access, intellectual property rights, and delivery systems engenders a wealth of fundamental questions concerning economics, ethics, participatory democracy, private enterprise, and the production and dissemination of knowledge on a local, national, and global scale. These questions and concerns revolve around the central issue of regulatory policies for the Information Age, and the implications of these policies on the social, political, and cultural consequences of I.T.

Communication research does not suffer from a dearth of inquiry into the phenomenon of Information Technology. Indeed, with the advent of I.T. communication scholars have produced a wealth of research in the areas of processes and effects, speculative, interpretive, and critical analysis, and legal and economic studies (Bruning, 1994; Murdock, 1994; Schiller, 1993;

Steinfield and Fulk, 1988) . What is indicative of the fragmentary nature of the discipline is the lack of comprehensive efforts to synthesize these findings into a coherent analysis of the implications of an increasingly technocentric, information-dependent society.

> No effort has been made to collect all of these forecasts, assessments, speculations, and warnings to determine what is known and not known, identify areas of agreement and disagreement, and establish the range of proven policies that might be pursued. Ironically, in the midst of an inchoate revolution in communication technology, *this relatively simple act of communication between researchers and responsible policy-makers has not occurred* (Emphasis Added. Marien, 1985, p. 651).

While this lack of communication within communications research is not new, it has been exacerbated by the new media environment as each of the paradigms attempts to establish its academic "claim" to investigate these new media. The problem engendered by this lack of communication within the discipline is that the methodological and epistemological "blinders" of each of the approaches ignores the heuristic potential of a cross paradigmatic discourse. Complicating all of this is the rather acrimonious intradisciplinary debate over paradigm issues. Indeed the very nature of "paradigm" has and continues to be an area of contention. In their review of the literature, Potter, Cooper and Dupagne (1994) observe the debate over conceptual and operational definitions of communications paradigms.

> There is also a diversity of views about the paradigms underlying mass media research. There are at least six different speculations. Both Lowery and DeFleur (1988) and Hall (1982) say there are three sequentially ordered paradigms; Craig (1989) sees three coexisting ones; Giddens (1989) sees one; and Krippendorff (1989) and Rosengren (1989) each see none (Potter, et al. in prep p. 319).

While most researchers, identify two paradigms, social scientific and critical/cultural studies, Potter, Cooper and Dugange make the case for "a third to include legal, policy, and historical studies" (Potter, et al. p. 322). For purposes of this discussion then, I explore three paradigms of communication studies: social science, critical/cultural, and law and policy.

Social Scientific Inquiry

Rooted in the modernist, or Enlightenment tradition of objectivist inquiry via the systematic observation and analysis of natural phenomena, social scientific theory and methodology hold that human behavior, like physical, chemical, and biological entities, is subject to empirical analysis. Earl Babbie defines social science as, "the systematic observation of social life for the purpose of finding and understanding patterns among what is observed" (Babbie, 1992, p. 27).

While noting that social science examines a broad array of human activity through a myriad of methods of observation and analysis, Babbie claims there are three fundamental elements common to all social science: 1) theory, 2) methods, 3) statistics. Theory, as distinguished from philosophy and religion, addresses the world as it is, not as it "ought to be." Rational thought and logic then are hallmarks of theory. Methods involve observation in all its permutations (e.g. surveys, interviews, experiments, etc.). Statistics are the means of interpreting and analyzing data collected via observation. Two ancillary, but by no means unimportant components of social science are replication and the desire to explain human behavior in the aggregate.

In the broad perspective of Science, social science can be seen as theory-driven observation and analysis, capable of replication and motivated toward description and explanation of human behaviors. In Kuhnian terms, social science practices normal science; that is, social research works from a guiding set of principles and assumptions (theory) and attempts to advance understanding through replication (testing and interpretation) (Kuhn, 1970).

As applied to communication studies, social science utilizes a variety of theoretical perspectives to examine the impact of communication systems and messages on individual and social behavior. Prominent areas of study for social scientists are: 1) the diffusion of technological innovations (Rogers, 1983) 2) uses and gratifications of media (Rosengren, Wenner, and Palmgreen, 1985), 3) media effects (physical, emotional, cognitive and behavioral effects) (Lowery and DeFleur, 1988) and 4) the agenda setting and gatekeeping functions of mass media (McCombs and Shaw, 1972; Shaw, and McCombs, 1977).

While social science applies rigorous methods to the examination of communication media and the effects of these media on behaviors, there are some notable limitations and legitimate criticisms of this approach. For example, survey research, a hallmark of social scientific inquiry suffers has numerous flaws. The self-report, for instance, can not accurately gauge the way in which people use and interact with communications media form and content. Questions of social desirability, for example, oftentimes skew the findings of these surveys. What's more, surveys are incapable of capturing the myriad contextual variables which influence people's use of media.

Likewise, experimental design, another favored method of social scientific inquiry, is oftentimes criticized for failing to account for contextual variables that are difficult, if not impossible to replicate in the laboratory setting. While experiments are better suited than surveys at capturing the immediate impact of media messages, such efforts can not account for the cumulative effects of these messages. There are, of course more fundamental criticisms of social scientific techniques.

Critical/Cultural Studies

The application of rigorous empirical analysis to the vagaries of human behavior has not gone unquestioned. Critics challenge the ability of researchers to quantify human perception, emotion, and intellect. Taking up this position, critical scholars, far from making any pretense of objectivist inquiry, acknowledge their own subjectivity in exploring the function of communications media in the production and dissemination of ideology, and investigating the conditions of media access and control to social and political power relations. According to Michael Real, "Critical communication research examines public communication in reference to economic and political forces and the exercise of power, with attention given to social, historical, and ideological contexts. Political-economic dominance and epistemological issues are frequent concerns of critical theory" (Real, 1986, p. 460). Under the rubric of critical studies, issues of cultural identity and cultural (re)production are likewise interrogated. Indeed, the role of culture in terms of reflecting, embodying, and resisting power structures makes culture and cultural artifacts (e.g. texts,

databases, programs, computers, and computer networks) an important site for the critical scholar. As Real observes, these concerns over issues of culture have been addressed :

> [Becker] distinguishes four applications of the modifier 'critical' to communications studies: 1) rhetorical or literary explications of a media text, 2) cultural studies relating media specifics to cultural patterns, 3) evaluative comparisons of media industries and practices against potential social, political, or economic change, and 4) political economy (Real, 1986: 460).

As was noted earlier, social science attempts to understand the world, as it is. Critical scholarship seeks change. Significantly, critical scholarship, unlike social scientific research, is proactive in the sense that critical/cultural studies seek to challenge existing power relations, epistemologies, and social structures.

> Most of these researchers have been strongly committed politically. Rather than working outward from communication problems and insights toward beliefs and social conclusions, they have preferred to work inward from their beliefs toward the communication problems that particularly interest them. In other words, communication has been for them what Berelson described as a 'convenient entry to broader concerns.' Those concerns are most often a Marxian interpretation of the social effects of owning telecommunications facilities (Schramm, 1983, p.12).

Such wide-ranging, macroscopic concerns make defining critical/cultural scholarship a notoriously difficult task, while opening up the paradigm to critique from the social scientific community for its lack of coherency, objectivity, and methodological rigor. What's more, there is a good deal of infighting amongst cultural scholars. The critical edge that is a hallmark of British cultural studies is, according to some critics on both sides of the Atlantic, sadly lacking in American cultural studies. Indeed, within the discipline there is considerable debate over a lack of any sort of operationalization of cultural studies, or of culture for that matter. Added to this are charges of elitism leveled at Marxist oriented critical scholarship which undermine the proactive, liberationist rhetoric of critical theory.

Law and Policy

Exhibiting a rather enviable pragmatism, legal research utilizes a variety of methodological tools and approaches borrowed from the disciplines of history, philosophy and sociology. Legal scholars employ "historical method, linguistic analysis, participant observation, survey research, content analysis, experimental design, and other approaches" (Gillmor & Dennis, 1990, p. 332). That legal research is open to utilizing a "tool box" approach in answering the questions it poses is instructive in terms of the breadth and depth of law and policy concerns.

> Areas of law of greatest interest to mass communication researchers have been 1) torts, especially libel, privacy and since the New York Times case of 1964, constitutional privilege; 2) criminal law, affecting sedition, criminal libel, contempt, and journalist's privilege; 3) personal property, including copyright, trademark, and commercial speech; 4) constitutional law, freedom of speech and guarantees of liberty under due process of law; 5) legal procedure, the enforcement of substantive rights, and free press and fair trial; and 6) administrative law, the regulation of broadcast and other areas of telecommunication and advertising law" (Gillmor & Dennis, 1990, p.332).

Transcending the quantitative/qualitative divide which causes such dissension between social scientists and critical/cultural scholars, legal and policy studies illustrate the utility of a multiple methodological approach in answering a wide array of communication policy questions. Critical Legal Studies in particular illustrates the power of a critical, interdisciplinary approach to legal studies, and more important for the current effort, the promise of an integrated approach to communication research. Thomas Streeter identifies three contributions for CLS.

> First, CLS has revived attention to the role of concepts and belief structures in legal and policy decision making, particularly those of Liberalism. Second, CLS has advanced the concept of legal indeterminacy, a legal parallel to the linguistic and literary concept of the arbitrary sign that has important implications for understanding laws and legal procedures. These first two contributions have led to the third: a general view of contemporary law and policy as a series of Liberalism's attempts to rescue itself from its own limitations, attempts that in the long run only obscure the limitations they are supposed to transcend (Streeter, 1990: p. 43-44).

CLS then, represents the potential for rigorous, self-critical evaluation of power structures, knowledge claims, and the policy implications of these structures and epistemologies. Despite this facility for erudite analysis, legal and policy studies are criticized for their post-hoc approach to policy making. As such, communication researchers interested in the policy arena are accused of being reactive, if not reactionary, in their interpretation and analysis. Without a proactive stance, these policy researchers are viewed as being complicitous with the special interests of both government and industry in maintaining, rather than challenging the status quo.

These methodological and epistemological divisions are not solely responsible for the ferment in the field however. The dominance of the social scientific approach in communication research, particularly in this country, is rooted in the evolution of the communications media as privately held, rather than public service entities. To be sure, social scientific inquiry in the United States is synonymous with administrative research. The reasons for this are at once historical, methodological, and economic. "[W]hile communication researchers have defined the sample survey, preferably the national sample survey, as their chosen research tool, it is too expensive for more than a few people to be able to acquire suitable finance. In practice then, this core area of concern has been defined in such a way that it must be ceded back to the commercial organizations" (Tunstall, 1983, p. 94).

The use of empirical research methods and approaches in the service of industry, government, and special interest groups foregrounds the tensions between administrative and critical research. Melody and Mansell relate the perceived, and very real threat of critical analysis to empirical research, particularly as it relates to administrative studies, this way.

> For the so-called empirical or administrative researcher, issues relating to the structure of economic and political institutions (and sometimes social and cultural institutions as well), the centralization of power, the characteristics of dominant-dependent relations and the incentives of vested interests, are excluded from analysis. The premises of critical research, by calling into question and focusing research efforts on changes in asymmetrical political and economic relations -- and concluding that they are preconditions of significant change -- contradict and fundamentally threaten the administrative tradition (Melody & Mansell, 1983, p. 104-105).

This tension is evident in the cyclical (almost ritual) nature of the TV violence debate. The interaction of the four principle players in this debate: industry (broadcasters, cable operators, program distributors, producers, writers), government law makers, special interests groups (SIGs), and the research community illustrates the complex, and oftentimes interdependent relationship between social science and social, economic, and political power structures.[3]

The appropriation of Laserfeld's innovative social scientific methods, and the subsequent rise of administrative research, ought not result in the out of hand rejection of the scientific method however. Certain strategies employed by social scientists can be, and indeed have been, used to examine the phenomenon of I.T.[4] The utility of these methods is evident in studies which examine the rate of adoption of new technologies, the gatekeeping function within organizations implementing I.T., and the various uses and gratifications of these new media for individuals, groups, and larger social aggregates. Operating from a feminist perspective, Sue Curry Jansen proposes "taking" critical practices to scientific inquiry. In doing so, Jansen attempts to bridge the epistemological/ideological divide between empiricism and critical analysis.

> Accepting epistemologies that recognize the embodiment and situational and linguistic embeddedness of knowledge does not require rejecting science. To the contrary, it demands finally that we display fidelity to a long-professed but seldom-honored covenant of malestream science: the ideal that science is an ongoing, open-ended process that is never subject to final closure, a process that is fueled by criticism and delighted by surprise. Within the objectivity of situated knowledge, there are no unproblematic 'objects'. All objects and observations are mediated by language, culture, and vantage points (Jansen, 1989, p. 208).

Jansen's evaluation of the role of science in the production and dissemination of knowledge is indicative of the rigorous, self-critical tenacity of feminist criticism in unpacking the ideological functions of language, science and, ultimately, knowledge. Her triumph comes from her unflinching commitment to the tenet of science in its mission to explore, explain, and *challenge* the prevailing (social, cultural, ideological, and epistemological) order of the day.

What makes I.T. such a dynamic force, and as such a site which requires the concerted efforts of an integrationist communications research effort, is the ability of I.T. to decenter situated

knowledge, and in so doing, alter basic assumptions of power relations, epistemologies, and legal precedent. In his discussion "The Twilight of Hierarchy" Harlan Cleveland observes the epistemological consequences of the Information Age. Knowledge, as Cleveland envisions it, allows people and society to organize themselves in radically different ways. The major obstacle to such radical reorganization is not a dearth of knowledge, rather its implementation. "There is no such thing as useless knowledge, only people who have not yet learned how to use it" (Cleveland, 1985, p. 59). Earlier in his discussion, Cleveland observes that until quite recently scientific and technological innovations "were generally regarded as having a life of their own, an inner logic, an autonomous sense of direction. Their self-justifying ethic was change and growth" (Cleveland, p.55). Cleveland's observations are relevant to the present discussion in two ways. First, the nature of knowledge in fostering change in the organizational principles of people and societies must be recognized and exhaustively interrogated by communication researchers, particularly in light of the new media environment. Second, and perhaps more important, the preeminence of policy considerations, prior to, if not in tandem with, the design and deployment of these new media is essential.

Cleveland's analysis has been supported and elaborated by numerous intellectuals. In a recent discussion of the consequences of the new media environment, several theorists mapped out the dimensions, and the implications of this new age. Contained in their *Magna Carta for the Knowledge Age* the authors note that: I.T. challenges established notions of political and economic power; I.T. threatens to radically alter the nature of knowledge production and dissemination; and finally, I.T. problematizes a myriad of legal and policy issues, especially those long-held, some have argued antiquated, notions of intellectual property ownership, privacy issues and the perennial problem of universal service (Dyson, Gilder, Keyworth, and Toffler, 1994).

In light of the social/political/cultural/epistemological changes wrought by Information Technology, it is not only surprising, but somewhat alarming, that so few communications researchers acknowledge the importance of policy questions surrounding the new media. "The most powerful and significant issues to be addressed remain those questions of power, inequality,

and social order that have been at the core of social philosophy and research throughout the modern period. ... [T]he links between citizenship and the newly emerging communication order should occupy a central place in addressing those questions" (Murdock and Golding,1989, p.193). Policy questions of the sort Murdock and Golding observe demand the sort of rigorous scholarship that can only come from an integrated, multidisciplinary approach for unpacking the dynamics of the new media environment. In the next section, I will explore the potential for an integrated approach, a networking of communications paradigms, in examining I.T. and *made possible* by these very same technologies.

Paradigmatic Pragmatism

The integration of the three communication paradigms has several benefits for the future of communication research. As a site of intense intellectual inquiry, I.T. represents a common ground where diverse interests, concerns, philosophical dispositions, and methodological tools are not only valuable, but necessary to understanding the social/cultural/economic/political implications of new media systems. Put more succinctly, *the dynamics of I.T. demand a rigorous, critical empiricism based upon a proactive and anticipatory perspective designed to inform policy-making decisions*. The convergence of technologies engenders this convergence of communication methods and approaches. This integrationist approach I call for is a *pragmatic* response to the dynamic, potentially revolutionary set of circumstances I.T. represents. Such an adaptive, creative response does have an historical precedent.

Focusing on a set of questions unique to the city of Chicago in the 1920s, a group of sociologists formed a "dense, highly integrated local network of teachers and graduate students carrying out a program of research in one city centered around common problems" (Bulmer, 1984, p. 1). In his discussion of the origins and significance of the Chicago School of Sociology, Martin Bulmer observes the pragmatism of these researchers in their attempts to evaluate the dynamics of the urban experience as represented by Chicago at the beginning of this century. Several factors distinguish the Chicago School of Sociology from other intellectual communities, past and present. Bulmer notes the collectivity of the school's personnel in their examination of a

wide variety of topics relevant to the investigation of the urban experience that led to the power of their insights. Central to their sense of collective enterprise was the publication of journals and reviews necessary to disseminate their findings to a wider circle of interested scholars, and, significantly, to the general public.

Perhaps most important to the success, and lasting value of the Chicago School of Sociology, was the lack of methodological dogmatism. Bulmer notes the importance of establishing and maintaining a rigorous, and intellectually gregarious academic community was their commitment to "the 'best'" of contemporary sociological and methodological perspectives. Although there were differences of emphasis *there was no one dominant approach. ... The department's orientation to sociology was varied and eclectic, and its strength lay in its diversity*" [Emphasis Added.] (Bulmer, p. 3). While best known for its ethnographic inquiry into urban life, quantitative methods helped better inform the critical insights of the Chicago School. The theoretical and conceptual foundations of sociology were enhanced, not threatened by the rise of empirical social scientific research employed by many of these sociologists. "The department's commitment to excellence of all kinds, not a preference for particular types of methodology, was the overriding feature of the period. There were many strains and controversies, but it was a community of scholars committed to a common goal" (Bulmer, p. 6).

Just as Chicago's urban environment confronted these sociologists with a set of common concerns, so too does I.T. represent communication scholars with a set of problems that challenge the limits of strict adherence to methodological traditions. That communication scholarship lacks the sense of collective intellectual endeavor evidenced by the Chicago School of Sociology has been made abundantly clear. I suggest that I.T. can and does promote such an intellectual pragmatism.

Life on the net is often characterized by "the hacker ethic," that is a commitment to the free and unfettered flow of information and ideas. The scientific community's "appropriation" of the ARPANET, the precursor to today's Internet, is illustrative of this commitment. (Giese, 1994). The desire on the part of the military for such a decentralized command and control system

engendered a collaborative process within and between a widely dispersed group of computer experts. "This cooperative effort fostered discussion of problems and solutions on the network and gave rise to on-line discussion groups" (Giese, p. 5). Conceived, designed, and implemented by computer scientists for the U.S. military as just such a decentralized system, ARPANET was "lost" to military control due to its very decentralized nature. While such a system runs against the grain of the rigid, conformist, hierarchical organization of the military, the open systems approach fosters and enhances the possibilities for creative collaboration among scientists and academics. The creative and collaborative environment made possible by I.T. ought to be exploited by communication researchers in their efforts to investigate the implications of the information age. The possibilities for such an effort are offered here.

The very nature of information itself, particularly in today's wired world, fosters a greater flow of information and ideas. Cleveland observes how the properties of information on-line force us to examine the dynamic property of information. In mapping out the properties of information, Cleveland concludes that, "An information-rich environment is thus a sharing environment" (Cleveland, p. 59). This "sharing environment" is made possible by the host of economic, intellectual, and technological resources that has engendered the convergence of technologies I have referred to as I.T. Essential, and (de)central, to this sharing, is the nature of the network.

In his report to the U.S. Department of Justice on the breakup of AT&T and the subsequent regulatory concerns over the activities of the Regional Bell Operating Companies (RBOCs) Peter Huber describes a non-hierarchical telecommunications structure he dubs the geodesic network. A key feature of the geodesic network is the consolidation of production in response to the dispersed nature of consumption along the network. Huber offers a number of reasons why this is so, foremost of which is consumer demand. In such a diffused consumptive milieu, Huber contends, integration is highly sought after. "The most valuable service a firm can provide in this fractious environment is the organizational skill to put the pieces together" (Huber, 1987, p. 12). Converged communication systems are required in order to make possible the delivery of a variety of data services and formats. What a successful communication system provides is "a supplier to

sift through the countless combinations of nodes and links to assemble a telecommunications solution, *not a seething ganglion of irreconcilable technological antagonisms*" [Emphasis Added.] (Huber , p. 12). Huber's conception of the geodesic network as the most practical, flexible, and efficient means of providing a diverse wealth of data to a disparate consumer base has stunning parallels to the current state of communications research, and, more significantly, important implications for fulfilling the requirements for *effective* communications research.

As has been suggested, the convergence of media technologies as represented by I.T. *demands* an integrated approach to unpacking the dynamics of the information revolution. Researchers working within each of the communication paradigms are asking a variety of questions in an attempt to address an enormous array of issues concerning I.T. In the terms of Huber's discussion, communication research has a rather large, heterogeneous, and widely dispersed consumer base. What's more, an integrated system which overcomes the "irreconcilable technological antagonisms" can, conceivably, overcome the ideological and epistemological antagonisms present within the field of communications research. Again, to place this discussion in Huber's terms of the geodesic network, the consolidation of production (a research program) is *required* to facilitate a varied and disparate consumer demand (communications researchers from each of field's paradigms). The geodesic network then, provides the means, and the model by which the social scientific, critical/cultural, and law and policy paradigms of communication research can *network*.

Another intriguing facet of the geodesic network is that it is a flexible, stimulating environment. A far cry from the rigid, hierarchical, and stifling atmosphere produced by older networks, "the geodesic network will support both consolidation and competition" (Huber, p. 14). Any fear that should this networking take place communication scholarship might become a reified, uncritical discipline is unfounded. The competitive/consolidated nature of geodesic networks ensure that the contestatory quality of rigorous intellectual inquiry will not disappear from communication scholarship.

Speaking to the significance of networks in providing a creative, cooperative environment, Ram Charan observes: "Networks really begin to matter when they affect patterns of relationships and change behavior -- change driven by the frequency, intensity, and honesty of the dialogue" (Charan, 1991, p. 105). The affect of such a network on communication researchers is sure to be a positive one. For the network allows, indeed encourages, creative participation in collective efforts. Increased cooperation, new and improved means of feedback, and the free and unfettered flow of ideas lead to increased productivity and more dynamic efforts. Charan notes, as members of a network work together a shared, and ultimately more profound understanding of these endeavors develops. In addition, the creative problem solving environment not only leads to better solutions, but oftentimes leads to new and more intriguing questions. "[N]etworks do not merely solve problems that have been defined by them. Networks are dynamic; they take initiative" (Charan, p. 106). Although he is writing for the business community, Charan words illustrate the potential of the network for the reinvention of communication scholarship.

> The network must also share openly and simultaneously each member's experiences, successes, and problems, soft information that can't be captured in databases and spreadsheets and that remains hidden for as long as possible in traditional organizations. This is the kind of sharing that builds trust, empathy, and secure relationships. It also broadens participants. *They begin to see the organization through multiple viewpoints and understand more instinctively the pressures, challenges, and capabilities of functions and business units outside of their traditional boundaries* [Emphasis Added.] (Charan, p. 112).

Perhaps the most satisfactory aspect of this notion of a networking of paradigms is that the network exists today, thanks in large measure to the historical development of information networks, and the economic peculiarities of these networks. As was suggested earlier, the academic community, having built the military's decentralized command and control system, appropriated the network in the service of facilitating, and dynamizing intellectual inquiry. The Internet, as we know it today, is a testament to the finest traditions of scholarship, that is the dissemination and subsequent critique and refinement of intellectual endeavors. Of course, the wealth of intellectual resources that led to the design and development of the Internet called for the

allocation of vast economic resources as well. But just as the structure of the network is diffused, so too are the costs involved in expanding the network. "[E]ven at the institutional level, the costs associated with the growth and maintenance of the Internet are diffused and indirect. Once the investment in computer hardware is made there is little additional cost associated with making access to the Internet available to a wide range of people" (Giese, p. 15). The increasing calls for economic austerity which threaten to seriously curtail academic research efforts may provide an even greater impetus for an increased electronic exchange of information and interaction between communication scholars.

To be sure, the nature of scholarship is changing, both in terms of its conduct and in its mode of dissemination. A recent issue of *Communications of the ACM* describes the changing quality of scholarship in light of I.T. and the response of the academic community to these changes (Denning and Rous, 1995). In their electronic publishing plan, Denning and Rous illustrate the advantages of electronic research efforts. The dissemination of research in a more timely fashion to a more diverse audience (academics as well as lay persons) has altered traditional notions of scientific publishing. The increasingly accepted practice of "circulating preprints" cuts down considerably on the publishing delays so familiar to members of the academy. What's more, "it is seen by many as improving the quality of works by subjecting them to wider scrutiny than that of a few referees" (Denning and Rous, p. 99). Works in progress that are "posted" increase the potential for "collaborative authoring and for dynamic documents that incorporate other documents by link rather than by direct copying" (Denning and Rous, p. 100). While these strategies make the notion of copyrighted material increasingly problematic, the opportunity for truly innovative scholarship which combines text, still and motion pictures, and sound in a collaborative or, as some have suggested, "living" environment, opens up the possibilities for increased cooperation not only between the communications paradigms, but across the entire university. One day soon, the notion of disciplinary boundaries so endemic (coveted perhaps?) by academia may be a thing of the past.

Eli Noam observes AT&T's axiom for their open network design: "The system is the solution" (Noam, 1989, p. 11). This pithy sentiment works well to describe this effort's thesis: I.T.'s

perceived challenge to communications research is also the field's salvation. (I find the appropriation of a corporate slogan in the service of a more rigorous, proactive, less administratively driven communications research program most pleasing to my sense of irony). The dramatic integration of media systems suggests future research trends and strategies, particularly the use of I.T.'s formidable capabilities in research efforts (e.g. data collection, creative/interpretive "trials" of new media, communication between researchers, and the reevaluation of existing power/social/knowledge structures). The successful integration of social scientific, critical/cultural, and law and policy studies is essential for investigating the increasingly complex questions of media literacy, uses and effects, media access and ownership, public vs. private interests, participatory politics, civil society, and the character of discourse within such a society. I.T. then, represents more than a challenge to communications researchers, I.T. offers the field a venue for cooperation and cohesion.

Notes

1. See two issues of Journal of Communications published ten years apart: Ferment in the Field (Journal of Communication, Summer 1983) and The Future of the Field -- Between Fragmentation and Cohesion (Journal of Communication, Summer 1993) .

2. "The term 'information technology,' also expressed as 'information and communications technology,' and in short as 'the new technology,' includes computers but rarely refers solely or primarily to them. ... the term encompasses not only computer hardware and software but also the communications system, networks, and databanks and other information utilities to which computers may be connected" (Ronfeldt, 1992, p. 244). Ronfeldt, D. (1992). Cyberocracy Is Coming. *The Information Society Journal* 8(4), 243-296.

3. For an outstanding critical/historical evaluation of the TV violence debate, see Rowland, W. D. (1983). *The Politics of TV Violence*. London: Sage Publications.

4. An excellent empirical/critical study, with certain policy implications for the use and maintenance of a public access computer network is, Collins-Jarvis, L.A. (1993). Gender Representation in an Electronic City Hall: Female Adoption of Santa Monica's PEN System. *Journal of Broadcasting Electronic Media*. 37, 49-65.

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